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### How the electric vehicle rode public subsidies into the mainstream

Electric cars are booming in Georgia — but at what cost?

By John Ruch @JohnRuchAtlanta



JOEFF DAVIS

**TAKING CHARGE:** A group of electric cars charges at a parking lot across from the capitol.

Michael Beinenson needed a new car. Before the Alpharetta resident endured the auto dealer lots and sales pitches, he shopped online. During his research he discovered the Nissan Leaf, a teardrop-shaped electric car that promised zero emissions and cleaner air. But for Beinenson, the environmental benefits were second to the financial savings. According to Nissan, the Leaf was eligible for a Georgia tax incentive that, by some measures, made it the cheapest car on the market. Even factoring in electricity costs, a Georgia customer could drive a Leaf for about a hundred bucks a month.

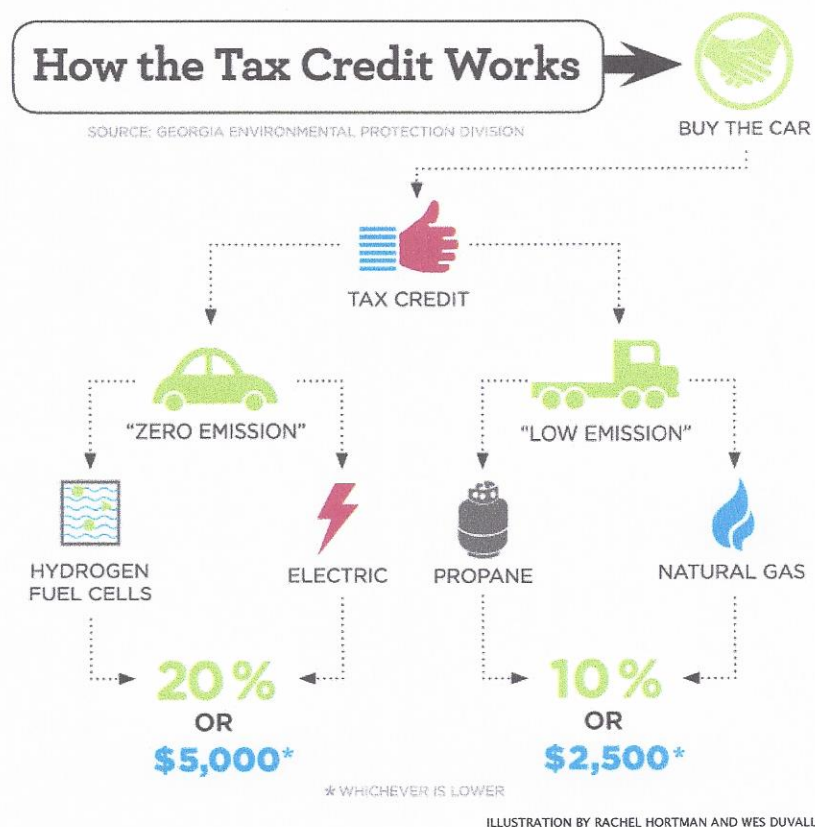
"It had nothing to do with the environment and had everything to do with savings," says Beinenson, who's now president of the EV Club of the South, which meets monthly at Manuel's Tavern to talk electric-car advocacy.

On average, a Nissan Leaf can be leased for \$70 a month and driven 1,000 miles for less than \$30. Those numbers are driving Georgia's extraordinary boom in electric cars, with the state leading the nation in the rate of new registrations as of early 2014. More and more Leafs are dotting metro Atlanta's roadways, and chargers are starting to appear outside businesses, bars, and new residential developments.

A hefty state tax credit of up to \$5,000 per car is juicing sales. But if you want to get aboard the electric bandwagon, act fast and enjoy the nearly free ride while you can. There are people, including some electric-ride advocates, who say the credit is too generous. Others say it's necessary in order to create a market for alternative fuel vehicles, which can reduce climate-changing greenhouse gases better than hybrid cars. Though there is dispute about how clean electric cars are on the power-generation side. The Gold Dome is reviewing proposals ranging from slashing the credit to pulling the plug entirely by 2019. Due to the tax credit's obscure nooks and crannies, the end result of an overhaul might offer more incentives for other alternative vehicles, such as hybrids. And it could have lasting impact on how soon other cutting-edge car tech comes to Georgia.

The curiosity of an electric-car boom in a state whose leaders barely acknowledge global warming has drawn international media attention. The secret lies in the tangled history of the tax credit, says Don Francis. He's the coordinator of Clean Cities-Georgia, a 21-year-old federal initiative to team utilities, big corporations, and car-makers on programs that cut petroleum use with U.S. energy independence in mind.

According to Francis the tax credit, originally written in 1998 to encourage commercial vehicle fleets to go electric, was a dud law that largely sat dormant for years. In 2011, Nissan brilliantly took advantage of it to craft cheap short-term leases for its new Leaf model electric car.



The Leaf is "virtually free to own" in Georgia thanks to the tax credit, says Tim Echols, a Republican member of the Public Service Commission, which regulates state utilities. Echols is one of the biggest boosters of Georgia's electric-car boom, traveling to such locales as the Massachusetts Institute of Technology to tout the tax credit's success.

A proud Leaf driver for the past 15 months, Echols explained the cost breakdown of his lease package. The car's sticker price of around \$30,000 is already



discounted by a \$7,500 federal tax credit claimed by the loan-financing company. The Nissan dealer offered Echols a two-year lease at \$276 per month, with the first and last months' payments down. The state tax credit covers \$208 of that monthly bill. It's not a direct reimbursement. As a tax credit rather than a rebate, it offers the lessee a reduction in his state income tax bill for up to five years, and is worthless if no taxes are owed.

For Echols, it means he's effectively paying \$68 a month for the Leaf, plus a minor down payment and taxes. That's before figuring in the savings of a battery-powered car that plugs into the wall. There's no oil to change and few moving parts to break. Even with his previous highly efficient Toyota Prius hybrid, Echols was paying around \$120 a month for gas. Charging the Leaf, on the other hand, costs him about \$20 a month on the power bill, after spending \$699 to install an optional charging station at his home.

"Now the car is actually creating a positive cash flow," he says.

In the few years since Nissan pioneered the deal, Georgia's electric-car registrations have gone from a handful to an estimated 15,000 and rising. According to Francis, around 80 percent of them are Leafs. Fifteen thousand is a tiny sliver of the state's 8 million vehicles, but it's a skyrocketing percentage. According to IHS Automotive, an industry analysis firm, Georgia led the nation in the first half of 2014 in the percentage of newly registered vehicles that were electric at 1.6 percent. By November 2014 — the latest IHS stats available — metro Atlanta was second only to metro San Francisco in urban electric-vehicle adoption rates, at 2.77 percent of all new registrations. In hard numbers, Atlanta's tally of 8,445 newly registered electric cars was third in the nation, behind only San Francisco and Los Angeles, and far ahead of fourth-place Seattle.



**ENERGY BOOST:** Tim Echols, public service commissioner and electric vehicle booster, charges his car near Liberty Plaza at the Georgia capitol.

The latest available vehicle registration stats, from July 31, 2014, show 10,110 electric vehicles on Georgia roads — a number that had nearly doubled in just four months.

The rise in electric vehicles has also made an unexpected hit on state coffers. From 2012 to 2014, electric-car tax credit claims jumped 1,300 percent. William Cook, the state Environmental Protection Division official whose office certifies the claims, says he used to have one person working part-time on the process. Now it's four to five full-time. The claims have tallied more than \$40 million.

State Rep. Chuck Martin, R-Alpharetta, calls the tax credit an "entitlement" more than an incentive. He led a nearly successful effort to kill the tax credit last year, and he's gearing up again this session to reform it.

"When people wave the flag that we're number two in electric vehicles, well, of course," Martin says. "If you handed out \$50 million across college campuses in Georgia, you'd probably be number one in Domino's pizza."

"This is a worst-case scenario for a tax credit," Martin continues, calling it an "arterial bleed from the state budget that is going to get wider. We can't pay for a Leaf lease for everybody in the state."



JOEFF DAVIS

**UNPLUGGED:** State Rep. Chuck Martin, R-Alpharetta, led a nearly successful effort to kill the electric tax credit last year, and is gearing up again this session to reform it.

Echols disagrees that electric cars are an economic drain. He says the tax credit boosts Georgia's economy because electric-car owners can spend elsewhere what they save on fuel and maintenance.

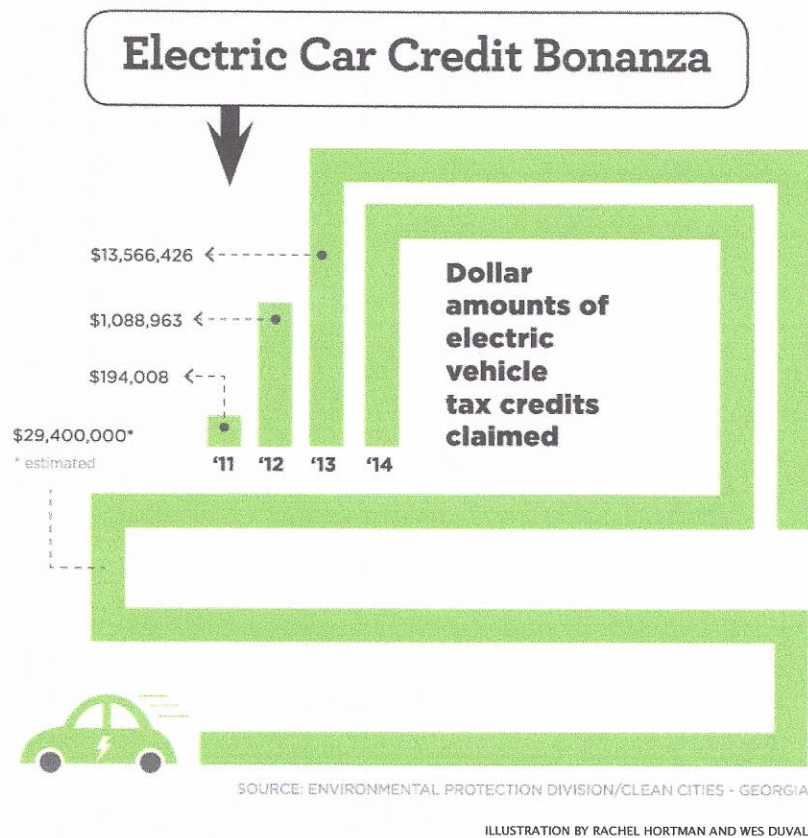
"Those [who] have not had the experience with electric cars and are demonizing them [and saying drivers]... are somehow bilking the state and cheating them — it's not true," Echols says. "We need to thank these pioneers." He fears that killing the tax credit will kill the electric market.

But Francis says that the industry itself is ready to kill the tax credit over time. In the wake of Martin's efforts last year, Clean Cities quietly put together an industry task force called the Georgia LEV [Low-Emission Vehicle] State Income Tax Credit Team to write a legal suicide note for the law.

The task force's bill would ramp down the tax credit to a maximum of \$3,000 as of July 1, then cut it to \$2,000 in 2018 before ending it completely in 2019. "We would rather be masters of our own fate," Francis says, adding that the task force has found a sponsor in the House (though he declined to name the legislator), and the bill will be introduced soon.

Carmakers and utilities are quick to join critics in killing this golden goose because, for one thing, they can afford to. The credit has already created a viable market for electric vehicles, and costs are likely to come down enough in five years for them to remain profitable. But, Francis says, electric-car advocates have long known that the tax credit law is out of date and seriously flawed, both because of the generous credit it contains as well as other types of emissions-reducing vehicles it leaves out. Until Martin came along, their tactic was "letting sleeping dogs lie. We didn't want to stir up the tax credit when it was just starting to take hold."





The \$5,000 maximum credit is among the nation's highest — most states with such credits offer half that — and has no cap on its use, so the same owner can claim the full amount with every new purchase or lease (which can be every two years on a Leaf). In fact, the credit previously triggered a similar, if quieter, controversy in 2001, Francis says. Back then, there was a minor boom in neighborhood electric vehicles — the glorified golf carts popular with traffic cops, among other users. NEVs cost around \$5,000, so once companies claimed the tax credit, they were virtually free. According to Francis, Clean Cities was among the advocates that backed the removal of NEVs from the credit — the most recent tweak the law has undergone — because totally subsidizing them was "not the right thing to do," Francis says.

The other big flaw: The tax credit hit the books before the boom in electric-gasoline hybrid vehicles and does not offer any credit for them. Hybrids offer similar, if lesser, benefits as all-electric cars in terms of cost savings and lower emissions, and are better suited to noncommuter driving. The most efficient models, so-called plug-in hybrids such as the Chevy Volt, blur the electric-gasoline line even further. Drivers plug them in for a battery charge, just like an all-electric car, with the gas engine used mostly for long-range driving and hauling. Though Georgia gets international attention for the success of its all-electric tax incentive, no one seems to notice it's an oddity among the states in not offering a hybrid credit.



ERIC CASH

CAR TALK: Michael Beinenson (right) addresses the EV club during the January meeting at Manuel's Tavern.

Martin, who drives a Kia hybrid, says he fears Georgia law has "skewed the market" away from wider use of hybrids. And Francis says there's industry concern, too. "Toyota wants this tax credit to go away because ... it's hurting their Prius sales."

Electric vehicle owners may soon be required to pay an annual fee. One proposal introduced by state House GOP leaders last week outlines a \$200 fee for noncommercial drivers to help fund Georgia's estimated \$1 billion road maintenance and building program needs. Since electric vehicles aren't fueled by gas, its users don't pay a gas tax, the main source of funding for Georgia's asphalt network. But they do travel the same roads.

Francis and Echols say the \$200 fee is too high and eclipses the average gas-car user's tax. Their solution is to make mandatory the currently optional \$35 specialty plates for electric vehicles that permit driving in HOV lanes for free. Take the funds for the mandatory plates — maybe even increase the fee a little bit — and send the money directly to the transportation budget.

When all is said and done, Georgia may end up with a tax credit that is shallower but broadened to include hybrids. Martin says he's not bent on pulling the plug on all-electrics, either, and he suggests limiting it to purchases rather than lease deals and capping the number of times an owner can claim the credit.

"We're gonna try to be reasonable," he says, adding that he's open to "keeping some form of credit that makes fiscal sense."

Electric and hybrid vehicles make environmental sense. They help reduce pollution that contributes to global warming and lung-disease deaths. The green angle makes electric cars popular in other hot spots such as environmentally conscious California, notes John O'Dell, a senior editor at the automotive industry analysis firm [Edmunds.com](http://www.edmunds.com). But here in climate-change-denying Georgia, the Leaf's name is often the extent of the green sales pitch.

Georgia Power is one company thrilled with the electric-car business and prominently advertising the green angle. Its [website touts the benefits of electric cars](#) under its "Environment" section, illustrated with a picture of a car painted a cartoonish green.

But questions have been raised about how green electric cars really are, and criticisms that the tax credit subsidizes a liberal delusion get floated in one-on-one debates, Francis says. After all, while promoted as "zero-emission" vehicles, electric cars still get their power from an electric grid that can be pretty dirty. The pro-electric-car [Union of Concerned Scientists recently published a report](#)



showing that in regions such as Georgia, where much of the power is produced by coal-burning plants, electric cars may produce more greenhouse-gas emissions than a hybrid, though still less than a pure gasoline car. And a [recent University of Minnesota study](#) found that plugging an electric car into a coal-fired grid might produce far more health-harming pollution than a gas-powered car.

Georgia Power Spokesman Brian Green says that electric and plug-in hybrid vehicles typically have lower emissions than gas-powered cars and echoes that it's important to consider the source of the electricity. The Union of Concerned Scientists notes that coal is fading in favor of cleaner electricity generation. Supporters of electric vehicles point to studies that say improving technology and cleaner power are making the case for the autos stronger.

"Even if you count the power plant emissions, even powered by dirty coal, an electric vehicle is just as clean if not cleaner than a comparable gas car," says Chris Campbell, an electric engineer and Lake Claire resident who operates [electrifyatlanta.com](#), a website about all things electric vehicles, including what cars are available in Georgia. He also claims to have owned the first Chevy Volt in the state. "There's no contest. It's a slam dunk on the [greenhouse gas] emissions argument."

According to Francis and Echols, about 80 percent of the state's electric cars are registered in five north metro Atlanta commuter counties: Cobb, DeKalb, Forsyth, Fulton, and Gwinnett. Georgia Power provides that electricity from a varying mix of sources including nuclear, coal, natural gas, and hydro power, along with some renewables. The utility is in the process of retiring 4,000 MW of coal power to rely more on natural gas. That fuel is hardly emissions-free. It contributes to climate change and lung disease and its discovery may involve fracking. But emissions-wise, it's a lot better than coal. Georgia Power allows customers to purchase solar-generated electricity to offset their car charging.

Building an electric car — let alone one you get to trade in every couple of years to lease a shiny new model — is hardly zero-emissions, either. It involves mining and steel forging and plastics-making, all in facilities that take huge amounts of power and leave behind waste. Electric car batteries are made of lithium, [a metal largely originating in foreign mines](#) that consume enormous quantities of local water supplies. As one mitigation, Nissan is using [a significant amount of recycled materials](#) in the Leaf. Several companies are looking into [large-scale battery recycling](#), but there aren't enough old electric cars to build that industry yet. Of course, traditional gas vehicles have similar production issues, and batteries that contain highly toxic lead.



ERIC CASH

GREEN GUIDE: A parking spot at Manuel's Tavern, reserved for electric cars to charge.

The bottom line, says industry analyst O'Dell, is that electricity generation is getting cleaner, battery recycling is on the way, and the federal government has bipartisan support for weaning the U.S. off the foreign-oil teat.

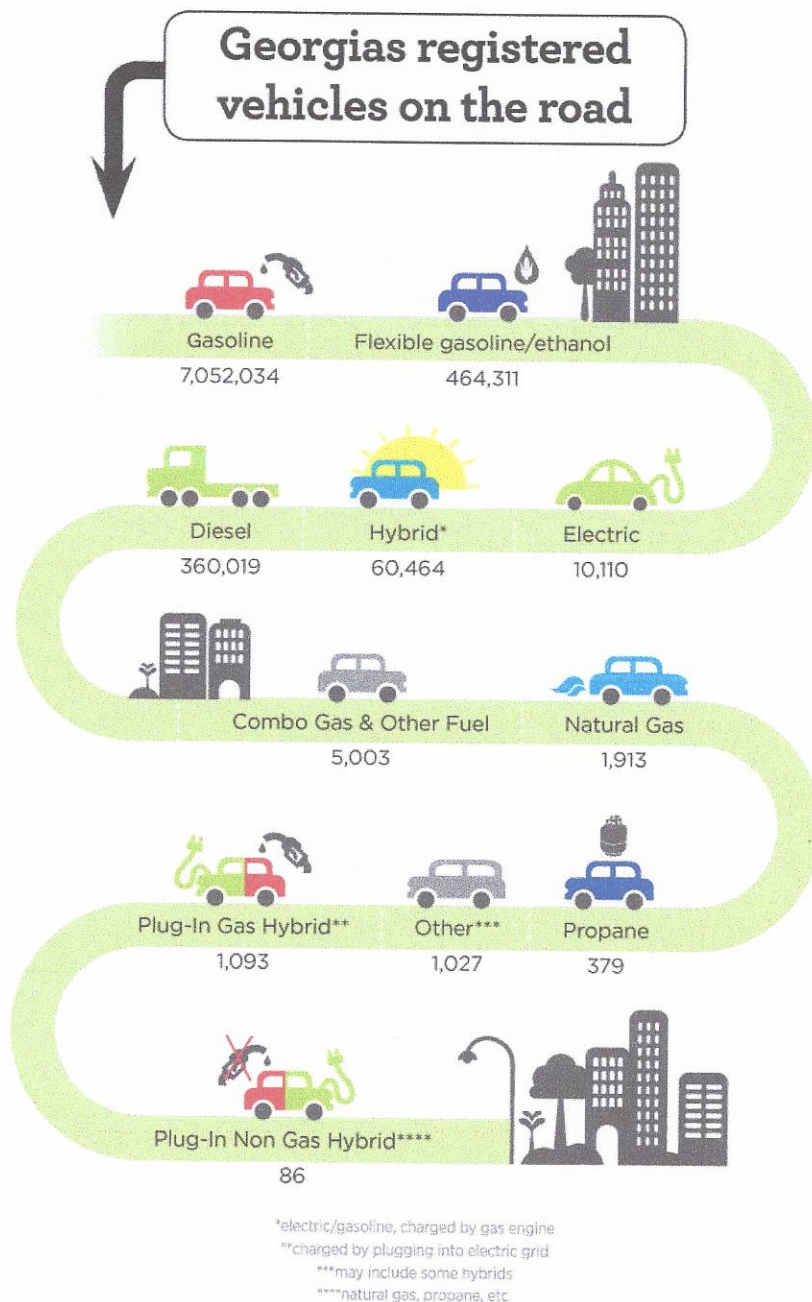
"[The future of cars] will be electric in varying degrees," he says. "This country has an imperative to increase the fuel efficiency of its vehicles, and the only way to do it with the numbers being kicked around now is electric."

The plug-in, battery-powered electric car, such as the Leaf, will become a bigger part of that future. But for all the ballyhooed boom, it "will always be a niche car, unless something happens that no one can imagine" in battery technology, says O'Dell.

That niche is for commuting and short-range trips. Electric car batteries take hours to recharge, and their range is limited. The cutting edge right now is 200 miles, with the Leaf half that at best. Charging station infrastructure is booming, but still spotty and limited to major metro areas. A battery's ability to hold an electric charge can vary with temperature, and the charge burns faster with speed. Echols and Beinenson both had stories of their electric cars running out of juice just like gas vehicles run out of fuel. Electric batteries also don't produce good hauling power.

"Electric vehicles are not for everybody," Francis says. "If you drive 50 miles a day or less, I don't care what electric vehicle you get, it's going to work for you." But "if you drive 100, 200 miles a day in rural Georgia, or need a pickup to haul stuff" it's hybrid or gasoline time. Ditto if you simply have an unpredictable schedule or need to travel off the charging-station grid.





SOURCE: GEORGIA MOTOR VEHICLE DIVISION/CLEAN CITIES-GEORGIA

ILLUSTRATION BY RACHEL HORTMAN AND WES DUVALL

So what is the miracle mainstream car of the future? O'Dell says it's likely to be the fuel-cell car, especially those powered by a tank of hydrogen that combines with oxygen from the air. Fuel cells are still electric cars, but instead of plugging into an outlet, the chemical reaction between the hydrogen and the oxygen provides the juice. The main emission is water.

Hydrogen fuel cells can produce energy similar to a gasoline engine with an equivalent of better than 60 miles per gallon, O'Dell says. The tech is still futuristic, though Toyota just last month put out its first hydrogen fuel-cell car in Japan, where the prime minister was tooling around in one.

Getting Americans to adopt such an unfamiliar new technology will take more than marketing, says O'Dell. It will involve tax incentives and legal mandates.

That's how the Prius hybrid went from oddity to run-of-the-mill 10 years ago. That's how the Leaf is booming in Georgia right now.

"If you would say, 'Let the market by itself dictate when these come out,' they wouldn't come out yet," O'Dell says.

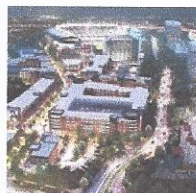
Which brings us to another little-known fact about Georgia's electric-car tax credit. According to the state, the very same \$5,000 credit that is boosting electric vehicles also would apply to hydrogen fuel cell cars — if any were on the local market. Just as the tax credit sat dormant for years until the Leaf came along, a new line of hydrogen cars could seize the advantage, too.

As the Gold Dome digs into reworking the tax credit this session, it's something to keep in mind. Legislators aren't just steering the course on the newfangled cars of the present. They may well be paving the way — or erecting a roadblock — for the cars of the future.

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